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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/375,695	08/17/1999	SCOTT BAXTER HOYLE	GE-06987A	5438

7590

04/01/2002

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EXAMINER

THOMPSON, JEWEL VERGIE

ART UNIT

PAPER NUMBER

2855

DATE MAILED: 04/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/375,695

Applicant(s)

HOYLE ET AL.

Examiner

Jewel V Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Withdrawal of Appeal Brief

1. In view of the appeal brief filed on 1/4/02, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 4, 6, 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alvesteffer et al (6,125,695) in view of Maloney (5,931,140)

Re: claims 1, 3, 4

Alvesteffer teaches the aspects of the claimed invention, an integrated fluid flow, temperature, the sensor (12) comprising:

a body (10) including a path for the flow of fluid:

a temperature determining means (38) located within the body, and coupled to the path, for making a determination of the upstream temperature of a fluid flowing in the path:

heating means (24) located within the body (col. 4, lines 24-34), and coupled to the path, for transferring heat from the heating means to the fluid;

control means (54) located within the body, and coupled to the heating means and to the temperature means, for applying power to the heating means in an amount required to raise the temperature of the heating means above the upstream temperature by the predetermined amount, and for converting the value of the power into a flow signal representing a corresponding flow (col. 7, lines 59- col. 8, lines 32); signal processor means (130) located within the body, and coupled to the control means, to the temperature determine means, (col. 10, lines 23-30);

signal connector means (136) mounted on the body, and connected to at least the signal processing means, for providing a standard connection between the signal processing means and the signal transmission path (fig. 5); the control means comprises a second temperature determine means (40) coupled to the heating means, for determine the temperature of the heating means; the second temperature determining means is an electrical resistor (col. 5, lines 30-33) and the second

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temperature determining means comprises means coupled to the heating means for measuring the electrical resistance of the heating means (Fig. 4), and the control means comprises means for converting the value of the resistance into a corresponding temperature (col. 7, lines 49-65);

the path is associated with a peripheral wall (22), and wherein the heating means is in the form of a peripheral structure surrounding the peripheral wall, and the thermal contact therewith (fig. 2); the peripheral wall is made from conventional materials having thickness commensurate with the pressure and temperature of the fluid, except in a region near that in which the heating means is thermally coupled, in which region said peripheral wall is made from a material having higher strength than the conventional materials, of a thickness less than the commensurate thickness (col. 4, lines 9-24) **except** a pressure sensing means located within the body for generating an electrical signal representative of the pressure of the fluid; the pressure sensing means generating an analog electrical signal;

Re: claims 1, 2

Maloney teaches a flow path consisting of heater, temperature and pressure sensors which are controlled by a controller and the signals are processed in the CPU. It would have been obvious to one skilled in the art at the time that the invention was made to have placed the pressure sensor of Maloney in the flow path of Alversteffer et al for the purpose of measuring the pressure of the fluid the then along with the temperature sensor and heater, determine the flow of the fluid. It would have been obvious to one skilled in the art at the time that the invention was made the pressure sensor of Maloney now in the flow path of Alvesteffer et al to output an analog signal

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since the processor receives analog signals from the sensors in order to determine the fluid flow.

Claim Rejections - 35 USC § 103

3. Claims 5, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alvesteffer et al (6,125,695) as applied to claims 1-4, 6, 7 above, and further in view of Redford et al. (5,973,313)

Alvesteffer et al teaches the aspects of the claimed invention **except** the control means comprising a memory preprogrammed with a value corresponding to the cross-sectional area of the path, and the flow determination is in the form of one of mass quantity per unit time and volume per unit time; the signal processing means are integrated into a single unit; the pressure sensing means is a ratiometric pressure sensor

Re: claims 5, 8

Alvesteffer et al teaches a controller comprising a memory. However, it is not specifically taught that there is a preprogrammed memory with a value corresponding to the cross-sectional area of the path, but the processor does teach the mass flow. The preprogrammed memory is just that, preprogrammed by someone or something. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to have preprogrammed the memory to provide the cross-sectional area of

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the path in order to determine the mass flow rate in any structural body since a memory is well known to be a part of the processor unit.

As taught by Alvesteffer et al, it appears that the control means and the signal processor are integrated into a single unit as shown in fig. 5. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to have integrated the processor and the control means as to provide the most efficient and accurate output.

Re: claim 9

Redford et al teaches ratiometric control signals. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to have placed a ratiometric sensor of Redford et al in the mass flow sensor of Alvesteffer et al in order to provide a measurement of the ratio of pressure proportional to the measurement of heat and temperature.

Claim Rejections - 35 USC § 103

4. Claims 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alvesteffer et al (6,125,695) as applied to claims 1-4, 6, 7 above, and further in view of Widner (6,199,575)

Alvesteffer et al teaches the aspects of the claimed invention **except** a pressure sensor that is a microelectromechanical system device and a controllable valve having a controllable flow channel connected by a further fluid path to the flow path of the

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integrated sensor, the controllable valve being within the body, and a control processor at a location remote from the body of the integrated sensor.

Widner teaches a microelectromechanical pressure sensor which is embedded in a valve body. It would have been obvious to one skilled in the art at the time that the invention was made to have used the sensor of Widner in the sensor tube of Alvesteffer et al in order to not only measure the pressure but also functions as a mechanical actuator for the valve. The system includes a transmitter integrated with the valve and a receiver located at a remote location.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

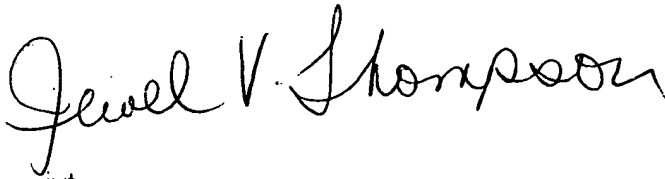
5,233,868	Coats et al teaches a non-intrusive mass flow measuring apparatus
5,965,813	Wan et al teaches an integrated flow sensor
6,062,077	Azima teaches a mass flow controller

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jewel V Thompson whose telephone number is 703-308-6726. The examiner can normally be reached on 7-4:30, off alternate Mondays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ben Fuller can be reached on 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1134.



jvt

March 25, 2002



Benjamin R. Fuller
Supervisory Patent Examiner
Technology Center 2800